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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,967	02/09/2004	Deepak V. Ayyagari	J-SLA.1368	2160

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ROBERT VARITZ
4915 SE 33RD PLACE
PORTLAND, OR 97202

EXAMINER	
SCUDERI, PHILIP S	

ART UNIT	PAPER NUMBER
2153	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/775,967	AYYAGARI, DEEPAK V.	
	Examiner	Art Unit	
	Philip S. Scuderi	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☒ Claim(s) *16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☑ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 4, 7, and 15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/913,881 (herein the "copending application").

Although the conflicting claims are not identical, they are not patentably distinct from each other. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim 1 of the copending application anticipates claims 4, 7, and 15 of the instant application. Thus, claims 4, 7, and 15 are obvious over claim 1 of the copending application. See

Structural Rubber Prods. Co. v. Park Rubber Co., 749 F.2d 707, 716, 223 USPQ 1264, 1271 (Fed. Cir. 1984) ("anticipation is the epitome of obviousness").

As to claim 4 of the instant application, claim 1 of the copending application teaches:

engaging in the process of determining direct internodal communication capabilities [claim 1 of the copending application recites "engaging ... in ... an analysis of the topology map", which includes "for all of the nodes, their respective ... capabilities"]; and

as a consequence of said engaging, electing a best-suited central coordinator node for a network [claim 1 of the copending application recites "from said engaging ... implementing ... [a] process to establish ... a ... best candidate(s) ... to become the thereafter selected central coordinator node"].

As to claim 7 of the instant application, claim 1 of the copending application teaches:

performing an analysis of topology knowledge regarding (a) the identities of nodes in a group, and (b) respective qualities of communication links that directly exist between said nodes, to identify the most appropriate candidate node to perform, in at least the immediate future, the role of a central coordinator node [claim 1 of the copending application recites "engaging ... an analysis of the topology map", which describes "for all of the nodes, their respective identities, capabilities, and associated inter-nodal communication link numbers and qualities" and "establish[ing] ... the ... selected central coordinator node"]; and

following said performing, collectively engaging plural nodes in the group in the selection of that candidate node to be the then-designated central coordinator node [claim 1 of the copending

application recites "implementing an all-nodal ... process to establish ... the ... selected central coordinator node"].

As to claim 15 of the instant application, claim 1 of the copending application teaches:

engaging in a discovery process to identify the qualities of direct and indirect internodal communication capabilities [claim 1 of the copending application recites "engaging ... in ... an analysis of the topology map", which includes "for all of the nodes, their respective ... capabilities"]; and

as a consequence of said engaging establishing, as desired, at least one proxy node to facilitate bi-directional communication with any hidden nodes [claim 1 of the copending application recites "from said engaging ... implementing ... [a] process to establish ... a ... best candidate(s) ... to become the thereafter selected central coordinator node"].

Claim Objections

Claim 16 contains multiple sentences and is therefore objected to for failure to comply with Fressola v. Manbeck, 36 USPQ2d 1211 (D.D.C. 1995).

Each claim must begin with a capital letter and end with a period. Periods may not be used elsewhere in the claims except for abbreviations. See Fressola, 36 USPQ2d at 1211.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is indefinite because it appears to contradict itself. The claim recites the limitation "enabling ... nodes ... to learn" (emphasis added). This limitation clearly does not require the nodes to actually learn, but merely requires the nodes to be capable of "effectively" learning. But, the claim also recites "on the basis of such learning, creating a ... table", which appears to indicate that the nodes actually need to learn.

Claim 6 recites the limitation "effectively learn[ing]" (emphasis added). The difference between leaning and "effectively" learning is unclear.

Claim 14 recites the limitation "a Tie Breaker criterion as described in claim 13". There is insufficient antecedent basis for this limitation because claim 14 does not depend from claim 13.

Claim 14 is indefinite because it fails to point out what is included or excluded by the language "as illustrated in Fig. 11 herein." This claim is an omnibus type claim (see MPEP 2173.05(r)).

Claim 15 recites the limitation "establishing, as desired, at least one proxy node" (emphasis added). It is unclear when or whether the establishing needs to take place to meet the claim.

Claim 16 recites the limitations ""the set of Proxy Coordinator nodes"", "T_{CCo}" and "N", "PCo", and "PCos". There is insufficient antecedent basis for these limitations in the claim and the claim does not reasonably convey to the examiner what these limitations are meant to encompass.

Claim 16 recites the operator "<=>", which the examiner is unfamiliar with.

The examiner will treat these claims on the merits as best understood.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,551,066 to Stillman et al. (herein "Stillman").

As to claim 1, Stillman teaches a distributed network organization method for self-organizing a group of nodes into a communication network where the nodes are all operatively connected to a shared communication medium, said method comprising:

placing the nodes (controllers 100), for up to a selected time interval (inherent because the controller stops scanning if no master_sync packet is found), in a condition of listening over the medium for the occurrence of a message (master_sync packet) indicating the presence of a CCo node (master) [see fig. 8, col. 18, ll. 63 – col. 19, ll. 35]; and

at a point in time following the conclusion of that interval, if there has been no such message occurrence (no master_sync packet), and under the collective action the node group ("all nodes are capable of arriving at the same decision as to which will be the master"), creating a network topology understanding (master node designation) which results in the activity of selection, from the group (nodes 100), of a CCo (master), and the production of a network organization utilizing such topology understanding (master node designation) [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 2, Stillman teaches that said organization production includes the recognition of hidden nodes (any node not within transmission range of any other node), and the naming of

intermediary proxy nodes which enable the mentioned effective bi-directional communication between each hidden node and other nodes [see col. 2, ll. 5-19].

As to claim 3, Stillman teaches that said creating of a network topology includes the per-node, individual creation of a discovered nodes list that describes direct internodal communication capabilities, and such selection activity is performed, at least partially, on the basis of the contents of such lists [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 4, Stillman teaches a distributed network method for self-organizing a group of nodes into a communication network where the nodes are all operatively connected to a shared communication medium and there is no central coordinator node, said method comprising:

engaging in the process of determining direct internodal communication capabilities (signal power, uptime, etc.) [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3]; and

as a consequence of said engaging, electing a best-suited central coordinator node for a network [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 5, Stillman teaches, following electing of a central coordinator node, identifying hidden nodes, and choosing intermediary proxy nodes (relay nodes) to enable all-node internodal communication capability through such proxy nodes [see col. 2, ll. 5-19].

As to claim 6, Stillman teaches a method for organizing, from a group of nodes, a communication network based upon the assumption that the organized network will, initially, lack a central coordinator, said method comprising:

determining which nodes in the group (controllers 100) are optimally capable of becoming organized into a desired network (are capable of communicating with each other) [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3];

enabling the so-determined nodes (controllers 100 that are within range) effectively each to learn (a) the identifies of other nodes in the group which have also been so determined, and (b) with respect to all of these so-determined nodes, the respective qualities of communication links that directly exist between pairs of the nodes [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3]; and

on the basis of such learning, creating a discovered topology table (required for the control program to determine a master based on minimization of signals power while maintaining contact with all nodes or mimimization of multipath to nodes) which provides a guiding tool for the current definition and formation of the desired network [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 7, Stillman teaches a method for organizing, from a group of nodes, a communication network based upon the assumption that the organized network will, initially, lack a central coordinator, and in a setting wherein each node in the group has topology knowledge regarding (a) the identifies of all other nodes in the group, and (b) the respective qualities of communication links that directly exist between different ones of these nodes, said method comprising:

performing an analysis of such topology knowledge to identify the most appropriate candidate node (controller 100) to perform, in at least the immediate future, the role of a central coordinator node (master) [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3]; and

following said performing, collectively engaging plural nodes (controllers 100) in the group in the selection of that candidate node to be the then-designated central coordinator node (master) [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 8, Stillman teaches that the selection includes a Maximum Coverage criterion which is applied to determine the node in the network which supports bi-directional links with the maximum number of nodes ("rules governing master selection ... include ... minimization of signal power while maintaining contact with all nodes") [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 9, Stillman teaches that the selection includes a Maximum Capacity criterion which is applied to determine the node in the network which exhibits the most desirable throughput characteristics ("rules governing master selection ... include ... minimization of signal power while maintaining contact with all nodes") [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 10, Stillman teaches that the selection includes a Device Class criterion which is applied to determine which node in the network possesses the highest class (max uptime, signal power, or stability etc.) among the nodes [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 11, Stillman teaches that the selection includes a Lowest Duty Cycle criterion which is applied to determine the node in the network which is characterized with having the highest percentage of time devoteable to attending to network control functions ("rules governing master selection ... include ... maximization of uptime") [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 12, Stillman teaches that the selection includes a combination of plural criteria from the list including (a) Maximum Coverage, (b) Maximum Capacity, (c) Device Class, and (d) Lowest Duty Cycle [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 15, Stillman teaches a distributed network method for self-organizing a group of nodes into a communication network, where the nodes are all operatively connected to a shared communication medium, certain nodes may be hidden nodes, and there is an initial assumption that there is no central coordinator node, said method comprising:

engaging in a discovery process to identify the qualities of direct and indirect internodal communication capabilities (signal power, uptime, etc.) [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3]; and

as a consequence of said engaging, establishing, as desired, at least one proxy node (master) to facilitate bi-directional communication with any hidden nodes [see fig. 8, col. 18, ll. 63 – col. 19, ll. 3].

As to claim 16, Stillman teaches establishment of proxy coordinator (relay) nodes, which appears to use the algorithm of claim 16 (as best understood) [see col. 2, ll. 5-19].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,551,066 to Stillman et al. (herein "Stillman").

Stillman discloses that the nodes use various rules to govern the selection of the master node [see col. 19, ll. 20-35]. Stillman further discloses "simultaneous designation of more than one master is avoided" because "all nodes share the same information and rules" [see col. 19, ll. 20-35].

One of ordinary skill in the art would readily recognize that the rules disclosed by Stillman could generate ties among potential master node candidates. For example, there could be two or more nodes that require identical signal power to contact all other nodes. Thus, it would have been obvious to one of ordinary skill in the art to develop means for selecting a master node when there are ties among potential master node candidates. One of ordinary skill would appreciate that the means for selecting a master node could not be random, because, for the system to function properly, each means for selecting a master node would need to select the same master node to avoid "simultaneous designation of more than one master" [see col. 19, ll. 20-35].

One of ordinary skill in the art would readily recognize that providing a Tie Breaker criterion to determine the best node when there is a tie would have been a logical means for selecting a master node when there are ties among potential master node candidates. It would therefore have been obvious to one of ordinary skill in the art to do so here.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,026,303 to Minamisawa discloses a method for determining an optimal parent terminal in an ad hoc network [see title, abstract].

U.S. Patent No. 6,980,522 to Boyle discloses a method for forming a network wherein each station (100) is assigned a rank representative of its suitability for performing the role of master station in a network (102a) [see abstract]

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip S. Scuderi whose telephone number is (571) 272-5865. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton B. Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Philip S. Scuderi/

GLENTON B. BURGESS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100